



# Grand Calumet River Area of Concern Aesthetics Monitoring Update



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Michelle Caldwell, IDEM



# Overview

- Reason for Monitoring
- Development of Monitoring Procedure
- Field Monitoring
- Photo Monitoring
- Data Scoring
- Scoring Results to Date
- Next Steps





# Reason for Monitoring

## 11. Degradation of Aesthetics

- **State of Indiana Removal Target**

- The general surface water quality shall meet the standards outlined in 327 Indiana Administrative Code 2-1.5-8 to the extent practical and possible

This section is summarized as:

- Free from substances, materials, floating debris, oil, or scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges that:
  - Will settle to form putrescent or otherwise objectionable deposits
  - Are in amounts sufficient to be unsightly or deleterious
  - Produce color, visible oil sheen, odor, or other conditions in such a degree as to create a nuisance

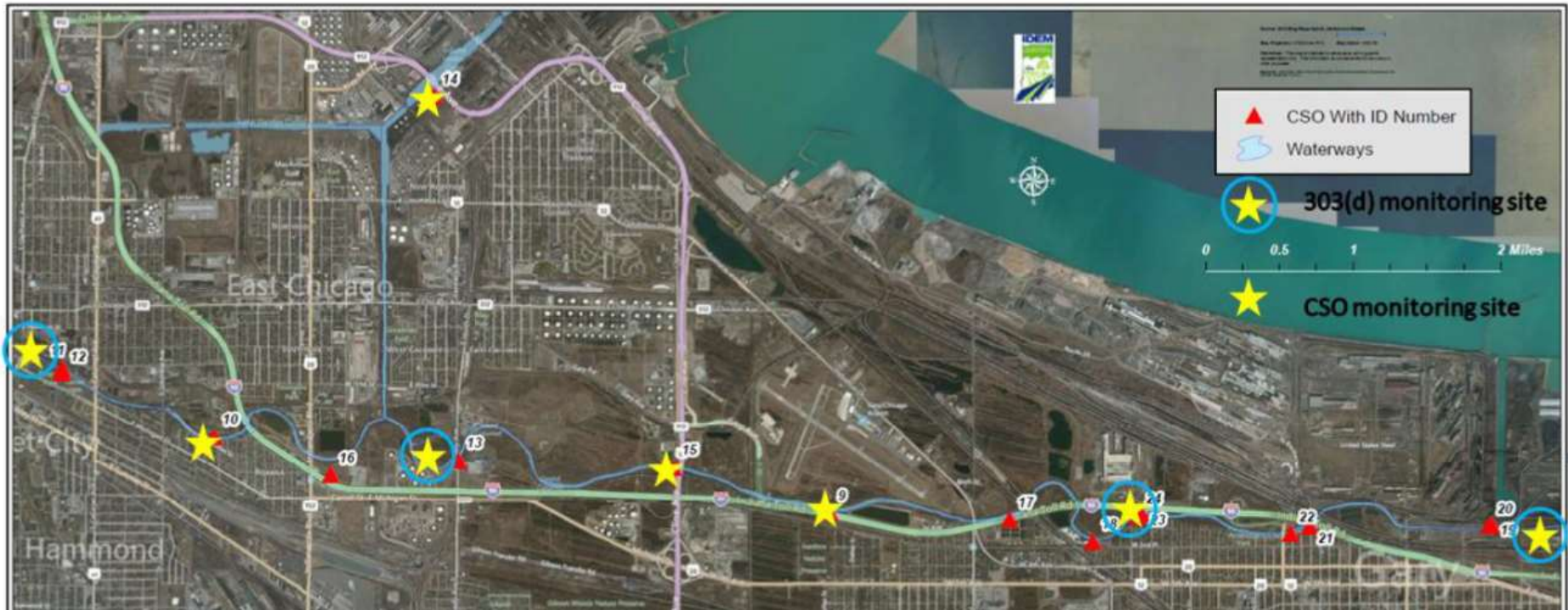


# Development of Monitoring Procedure

- Review and discussion of Michigan DEQ procedure led to development of our procedure
- IDEM developed a monitoring standard operating procedure and quality assurance project plan
  - Utilize IDEM staff (Wastewater, Fixed Station, and Remedial Action Plan) to do field monitoring
  - Monitoring from March through November, with effort to monitor following one precipitation event each three-month season
  - 8 site locations were selected
    - Four (4) known combined sewer overflow locations
    - Four (4) fixed station monitoring locations



# Monitoring Location Map



- GCR-46 Grand Calumet River at U.S. Steel
- GCR-37 Grand Calumet River Bridge on Kennedy Ave.
- GCR-42 Grand Calumet River Bridge on Bridge Street
- GCR-34 Grand Calumet River Bridge on Hohman Ave.
- 002C CSO-Michigan Ave. (Lat/Long) -87.464862/41.649721
- 003C CSO-Alder Street Lift Station (Lat/Long) -87.433238/41.613328
- 008C CSO-Polk St. at East Interceptor -87 20 59.8/41 36 27.9
- 002C CSO-Columbia Ave. (Lat/Long) -87 29 36.0/41 36 57.9



# Area of Concern

## Aesthetics Monitoring

- Baseline study monitoring conducted from May 2013 through November 2014
- Final report generated in June 2015
- First round of follow-up monitoring conducted March - November 2016
- 2017 follow-up monitoring still in progress



*A big **THANK YOU** to Nick Ream and Joel Armstrong for their field monitoring efforts!*



# Field Monitoring: Data Sheet

## Appendix B

### Grand Calumet River/Indiana Harbor Ship Canal AOC Aesthetics Monitoring Data Sheet

Date: \_\_\_\_\_ Site Description: \_\_\_\_\_

Time: \_\_\_\_\_ G.P.S. Coordinates: \_\_\_\_\_

Crew: \_\_\_\_\_

Name of person filling out form: \_\_\_\_\_

Weather: time of monitoring: \_\_\_\_\_

(Include: air temp(\*F), sky conditions, and any rain event)

Weather: past 24 hrs: \_\_\_\_\_

(Include: air temp(\*F), sky conditions, and any rain event)

#### WATER CLARITY

(Pick one)

Clear ☐

Slightly Turbid ☐

Moderately Turbid ☐

Highly Turbid ☐

Opaque ☐

#### ODOR

(Pick one type and one qualifier)

Type:

None/Natural ☐

Sewage/Fishy ☐

Musty ☐

Septic ☐

Qualifier

Faint ☐ Strong ☐

#### WATER COLOR

(Pick one color and one qualifier)

Clear ☐ Brown ☐ Green ☐ Yellow ☐

Grey ☐ Black ☐ Milky/White ☐

Other: \_\_\_\_\_

Light ☐ Medium ☐ Dark ☐

#### VISIBLE DEBRIS/OBVIOUS POLLUTION

(Downstream)

Foam: Present ☐ None ☐

Oil: Present ☐ None ☐

Film: Present ☐ None ☐

Trash: Floating ☐ Fixed ☐ None ☐

Solids: Floating ☐ Fixed ☐ None ☐

Floating Scum: Present ☐ None ☐

Deposits: \_\_\_\_\_

Describe: \_\_\_\_\_

Percent Coverage: \_\_\_\_\_

#### VISIBLE DEBRIS/OBVIOUS POLLUTION

(At Site)

Foam: Present ☐ None ☐

Oil: Present ☐ None ☐

Film: Present ☐ None ☐

Trash: Floating ☐ Fixed ☐ None ☐

Solids: Floating ☐ Fixed ☐ None ☐

Floating Scum: Present ☐ None ☐

Deposits: \_\_\_\_\_

Describe: \_\_\_\_\_

Percent Coverage: \_\_\_\_\_

#### VISIBLE DEBRIS/OBVIOUS POLLUTION

(Upstream)

Foam: Present ☐ None ☐

Oil: Present ☐ None ☐

Film: Present ☐ None ☐

Trash: Floating ☐ Fixed ☐ None ☐

Solids: Floating ☐ Fixed ☐ None ☐

Floating Scum: Present ☐ None ☐

Deposits: \_\_\_\_\_

Describe: \_\_\_\_\_

Percent Coverage: \_\_\_\_\_

ADDITIONAL COMMENTS/OBSERVATIONS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Photo Log:

(Record photo description and label/number)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_



# Field Monitoring

Visual observations were collected from surface water at the site, upstream, and downstream for the following list of parameters:

- Visible Debris/Obvious Pollution (Floating and/or Fixed):
  - Foam Presence
  - Oil Presence
  - Film Presence
  - Solids with a notation on whether natural or not
  - Floating Scum
  - Deposits
- Percent Coverage of above





# Field Monitoring

Additional observations were collected from surface water grab sample at the site for the following list of parameters:

- Water Clarity (Clear, Slightly Turbid, Moderately Turbid, Highly Turbid, Opaque)
- Odor Type (None/Natural, Sewage/Fishy, Musty, Septic) and Qualifier (Faint or Strong)
- Water Color (Clean, Brown, Green, Yellow, Grey, Black, Milky/White) and Qualifier (Light, Medium, Dark)



# Field Monitoring

Photos of each location (at site, upstream, downstream, and sample jar/beaker) were taken during each monitoring event

Any additional observations of the area or waterway were noted as appropriate:

- Pipe discharge
- Dredging
- Wildlife present





# Photo Monitoring

- Photos taken upstream, downstream, at site, and of sample
- Photos on the top are from upstream
- Photos on the bottom are from downstream
- Photos are from August 2013 and August 2017 monitoring events

# Polk Street

Upstream

2013



2017



Downstream

2013



2017





# Bridge Street

**Upstream**

**2013**



**2017**



**Downstream**

**2013**



**2017**





# Kennedy Avenue

**Upstream**

**2013**



**2017**



**Downstream**

**2013**



**2017**



# Michigan Avenue

Upstream

2013



2017



Downstream

2013



2017



# Alder Street (aka Cline Avenue)

Upstream

2013



2017



Downstream

2013



2017





# U.S. Steel

**Upstream**

**2013**



**2017**



**Downstream**

**2013**



**2017**



# Hohman Avenue

**Upstream**

**2013**



**2017**



**Downstream**

**2013**



**2017**





# Columbia Avenue

**Upstream**

**2013**

**2017**



**Downstream**

**2013**

**2017**



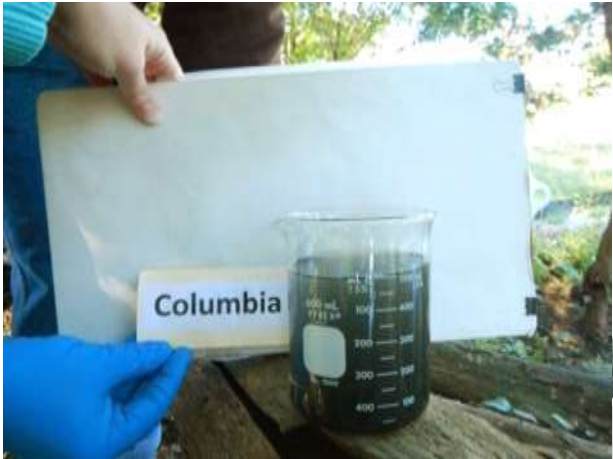


# Data Scoring

- For each monitoring site, scoring was completed for each parameter and qualifier individually
- Scoring was only completed for parameters and qualifiers that exhibited three (3) or more times in the field over the course of the monitoring period
- The number of times the parameter or qualifier exhibited in the field was multiplied by a variable score (as listed on the scoring sheet)



# Data Scoring



Site: Columbia Ave.

Parameter	Score only if shown to be a persistent problem	Frequency During the year(only persistent issues, occurring 3 times or more, will be scored)	Total Score (Variable Score x Frequency)
<b>Water Clarity</b>			
Clear	0	6	0
Slightly Turbid	0	3	0
Moderately Turbid	0	4	0
Highly Turbid	1	3	3
Opaque	2	N/A	N/A
Subtotal			3
<b>Odor Type</b>			
Natural/None	0	3	0
Musty	1	4	4
Sewage/Fishy	1	4	4
Septic	1	4	4
<b>Odor Qualifier</b>			
Faint	1	7	7
Strong	2	6	12
Subtotal			31
<b>Water Color</b>			
Clear	0	7	0
Brown	0	N/A	N/A
Green	1	N/A	N/A
Yellow	1	3	3
Grey	1	N/A	N/A
Black	2	N/A	N/A
Milky/White	2	N/A	N/A
<b>Color Qualifier</b>			
Light	0	4	0
Medium	1	4	4
Dark	2	N/A	N/A
Subtotal			7
<b>Visible Debris/Obvious Pollution</b>			
Foam Present	1	N/A	N/A
Oil Present	2	N/A	N/A
Film Present	1	N/A	N/A
Trash	1	N/A	N/A
Solids (non- natural debris)	2	38	76
Floating Scum	1	N/A	N/A
Deposits	1	11	11
<b>Percent Coverage</b>	(0-25%)=0 (26-50%)=1 (51-75%)=2 (76-100%)=3	76-100%	3
<b>TOTAL SCORE</b>			<b>131</b>



# Scoring Results

Site	Baseline Study Score	2016 Monitoring Score
GCR-46 Grand Calumet River at <b>U.S. Steel</b>	58	19
GCR-37 Grand Calumet River Bridge on <b>Kennedy Ave.</b>	8	0
GCR-42 Grand Calumet River Bridge on <b>Bridge Street</b>	0	0
GCR-34 Grand Calumet River Bridge on <b>Hohman Ave.</b>	51	33
002C <b>CSO-Michigan Ave.</b> (Lat/Long) -87.464862/41.649721	15	0
003C <b>CSO-Alder Street</b> Lift Station (Lat/Long) -87.433238/41.613328	25	21
008C <b>CSO-Polk St.</b> at East Interceptor (Lat/Long) -87 20 59.8/41 36 27.9	0	0
002C <b>CSO-Columbia Ave.</b> (Lat/Long) -87 29 36.0/41 36 57.9	134	15

*2017 data has not yet been scored due to monitoring still in progress*





# Scoring Results Summary

- All of the 6 sites (not meeting after the baseline study) improved during the 2016 monitoring
- 2016 results indicate that 4 of the 8 sites are meeting the removal criteria; however cannot remove the degradation of aesthetics beneficial use impairment (BUI) until all sites meet the removal criteria
- After 2017 monitoring is completed and the results have been scored, corrective actions will be identified for sites not meeting the removal criteria





# Next Steps: BUI Tracking

Locations	Round 1 (5/2013 - 11/2014) 16 months	Round 2 3/2016 - 11/2016 9 months	Round 3 4/2017 - 11/2017 8 months
U.S. Steel	58	19	
Hohman Avenue	51	33	
Kennedy Avenue	8	★	
Bridge Street	0	★	
Polk Street	0	★	
Cline Avenue/Alder Street	25	21	
Columbia Avenue	134	15	
Michigan Avenue (Arcelor Mittal Boat Launch)	15	★	

## Key:

MEETS REMOVAL CRITERIA	★
Baseline	
Improving	
Declining	



## Next Steps Continued

- Complete 2017 round of monitoring
- Score the 2017 data
- Determine potential corrective actions for sites not meeting the removal criteria





# Thank you!



Dredging at Columbia Avenue on November 18, 2016